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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,744	02/04/2004	Carl Frederick Edman	612,404-432	9786
34263	7590	06/26/2007		
O'MELVENY & MYERS LLP 610 NEWPORT CENTER DRIVE 17TH FLOOR NEWPORT BEACH, CA 92660			EXAMINER FORMAN, BETTY J	
			ART UNIT 1634	PAPER NUMBER
			MAIL DATE 06/26/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/772,744

Applicant(s)

EDMAN ET AL.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

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## **DETAILED ACTION**

### ***Priority***

1. Applicant's claim for priority as a CON of 09/489,855, which is a CIP of 09/436,311, which is a CIP of 08/760,933 is acknowledged. The '311 and '933 applications upon which priority is claimed do not provide adequate support under 35 U.S.C. 112 for instant Claims 15-19. Claims 5, 8, 10, 12, 15, and 18-19 are drawn to a an n-type semiconductor, a copper film, an  $Mn_2O_3$  layer and palladium layer, a Teflon sheet, a reference electrode and an optical fiber. The '311 and '933 applications do not describe these elements. Therefore the effective filing date for Claims 5, 8, 10, 12, 15 and 17-19 is the filing date of the '855 application i.e. 24 January 2000. Claims 1-20 are drawn to a device having a light source for inducing current within a liquid environment and an electrode in contact with the liquid and Claim 16 is drawn to a ring electrode. The '933 application does not describe these elements. Therefore the effective filing date for Claims 1-4, 6-7, 9, 11, 13-14 and 16 is the filing date of the '311 application i.e. 8 November 1999.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14 and 15 are indefinite in Claim 14 for the recitation "sheet-like" because it is unclear how "like" modifies the term "sheet". As such, it is unclear what is encompassed by the claim.

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Claim 15 contains the trademark/trade name Teflon. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a particular type of sheet and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-9, 13-14 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Seul (WO 97/40385, published 30 October 1997).

Regarding Claim 1, Seul discloses a device for photoelectric transport of charged materials (page 8, lines 12-page 9, line 17), the device comprising a substrate capable of generation a photocurrent (page 11, lines 14-22) a conductor contacting a portion of the

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substrate (e.g. platinum wire leads, page 11, lines 19-20), a permeation layer (e.g. colloidal beads, page 11, lines 22-29), attachment entities coupled to the permeation layer (e.g. particles with functionalized surface, page 21, lines 10-18), a liquid in contact with the permeation layer (electrolyte solution, page 8, lines 12-15), an electrode in contact with the liquid (page 8, lines 12-15) and a current-inducing light source (page 12, line 28-page 13, line 3).

Regarding Claim 2, Seul discloses the device wherein the substrate is adapted to generate a photocurrent (Abstract and page 11, lines 14-33).

Regarding Claim 3, Seul disclose the device wherein the substrate is adapted to generate a photoelectrochemical current (Abstract and page 11, lines 14-33).

Regarding Claims 4-6, Seul discloses the device wherein the substrate is an n-doped, silicon semiconductor (Abstract and page 11, lines 14-33).

Regarding Claim 7, Seul discloses the device wherein at least a portion of the substrate is a film (page 11, line 31).

Regarding Claim 8, Seul discloses the device wherein a portion of the substrate is copper (page 19, line 32-page 20, line 2). While Seul teaches that copper is "not desirable in most applications" (page 20, line 2), the fact remains that Seul teaches use of copper.

Regarding Claim 9, Seul discloses the device wherein the substrate comprises a chemical layer e.g. film (page 11, line 31 and page 17, line 33).

Regarding Claims 13-14, Seul discloses the device further comprising a sheet-like containment structure having apertures in a fixed relationship with the substrate (i.e. grid, page 25, lines 12-13).

Regarding Claim 20, Seul discloses the device wherein the light source is a laser (page 13, line 1).

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6. Claims 1-4, 13 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Buican et al (U.S. Patent No. 5,100,627, issued 31 March 1992).

Regarding Claim 1, Buican et al discloses a device for photoelectric transport of charged materials (Abstract), the device comprising a substrate capable of generation a photocurrent (sheet, #44) a conductor contacting a portion of the substrate (Column 4, lines 45-58), a permeation layer (e.g. culture media, Column 4, line 15-18), attachment entities coupled to the permeation layer (e.g. reagents, Column 4, lines 15-18), a liquid in contact with the permeation layer (Column 4, lines 9-20), an electrode in contact with the liquid (Column 4, lines 33-58) and a current-inducing light source (Column 3, line 21, Fig. 1).

Regarding Claims 2-3, Buican et al disclose the device wherein the substrate is adapted to generate a photoelectriccurrent (Abstract).

Regarding Claim 4, Buican et al disclose the device wherein the substrate is a semiconductor e.g. ceramic (Column 4, lines 47-49).

Regarding Claim 13 Buican et al disclose the device further comprising a containment structure (e.g. etched channels, Column 3, lines 64-67).

Regarding Claim 20, Buican et al disclose the device wherein the light source is a laser (Column 3, line 21).

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seul (WO 97/40385, published 30 October 1997) in view of Chu et al (U.S. Patent No. 5,079,169, issued 7 January 1992).

Regarding Claims 18-19, Seul discloses a device for photoelectric transport of charged materials (page 8, lines 12-page 9, line 17), the device comprising a substrate capable of generating a photocurrent (page 11, lines 14-22) a conductor contacting a portion of the substrate (e.g. platinum wire leads, page 11, lines 19-20), a permeation layer (e.g. colloidal beads, page 11, lines 22-29), attachment entities coupled to the permeation layer (e.g. particles with functionalized surface, page 21, lines 10-18), a liquid in contact with the permeation layer (electrolyte solution, page 8, lines 12-15), an electrode in contact with the liquid (page 8, lines 12-15) and a current-inducing light source (page 12, line 28-page 13, line 3). Seul teaches the light source is a laser (page 13, line 3), but is silent regarding an optical fiber or single mode optical fiber. However, particle manipulation using a single fiber coupled to the laser was well known and routinely practiced in the art as defined by Chu et al (Column 4, lines 59-68). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the optical fiber taught by Chu et al to the device of Seul. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success based on the routine use of laser-coupled optical fibers for particle manipulation taught by Chu et al (Column 4, lines 59-68).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seul (WO 97/40385, published 30 October 1997) in view of Bower et al (U.S. Patent No. 5,019,140, issued 28 May 1991).

Regarding Claim 15, Seul teaches the device of Claim 1 as detailed above and further teach the substrate is sectioned using hydrophobic materials to maintain separations between

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hydrophilic droplets (page 25, lines 12-17) but the reference is silent regarding specific composition of the hydrophobic material. However, Teflon was well known and routinely practice in the art as a barrier and was preferred based on its inertness to chemical attack, hydrophobicity and biocompatibility as taught by Bower et al (Column 1, lines 14-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use Teflon as the hydrophobic barrier in the device of Seul. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success for the expected benefit of inertness to chemical attack, hydrophobicity and biocompatibility as taught by Bower et al (Column 1, lines 14-18).

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,706,473. Although the conflicting claims are not identical, they are not patentably distinct from each other because



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both sets of claims are drawn to devices for photoelectric transport of charged materials. The claim sets merely differ in the arrangement of limitations within the claim sets. For example, instant claim 1 is drawn to the device comprising an electrode in contact with the liquid, while dependent claims 20 and 21 of the patent define a conductor/e.g. reference and auxiliary electrode disposed above the substrate. The patent further defines the conductor of claims 20 and 21 as liquid contacting (fig. 47). Therefore the claim sets are drawn to devices that are not patentably distinct.

### **Conclusion**

12. No claim is allowed.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

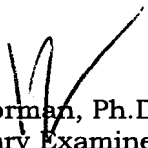
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the

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number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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Primary Examiner  
Art Unit: 1634  
June 21, 2007